

FIG. 1A is a graph of normalized amplitude versus time (arbitrary units) showing three periodic waveforms labeled 101, 102, and 103. The y-axis is labeled 'AMPLITUDE (NORMALIZED)' and ranges from -1 to 1. The x-axis is labeled 'TIME (ARBITRARY UNITS)' and ranges from 0 to 80. Waveform 101 is a cosine wave starting at 1. Waveform 102 is a cosine wave starting at 1 and shifted relative to 101. Waveform 103 is a cosine wave starting at -1. A point 'a' is marked on waveform 101 at time 0. A point 'b/c' is marked on waveform 101 at time 30. A double-headed arrow labeled $\tau = \phi$ indicates the time difference between points 'a' and 'b/c'. A double-headed arrow labeled τ_s indicates the period of waveform 101.

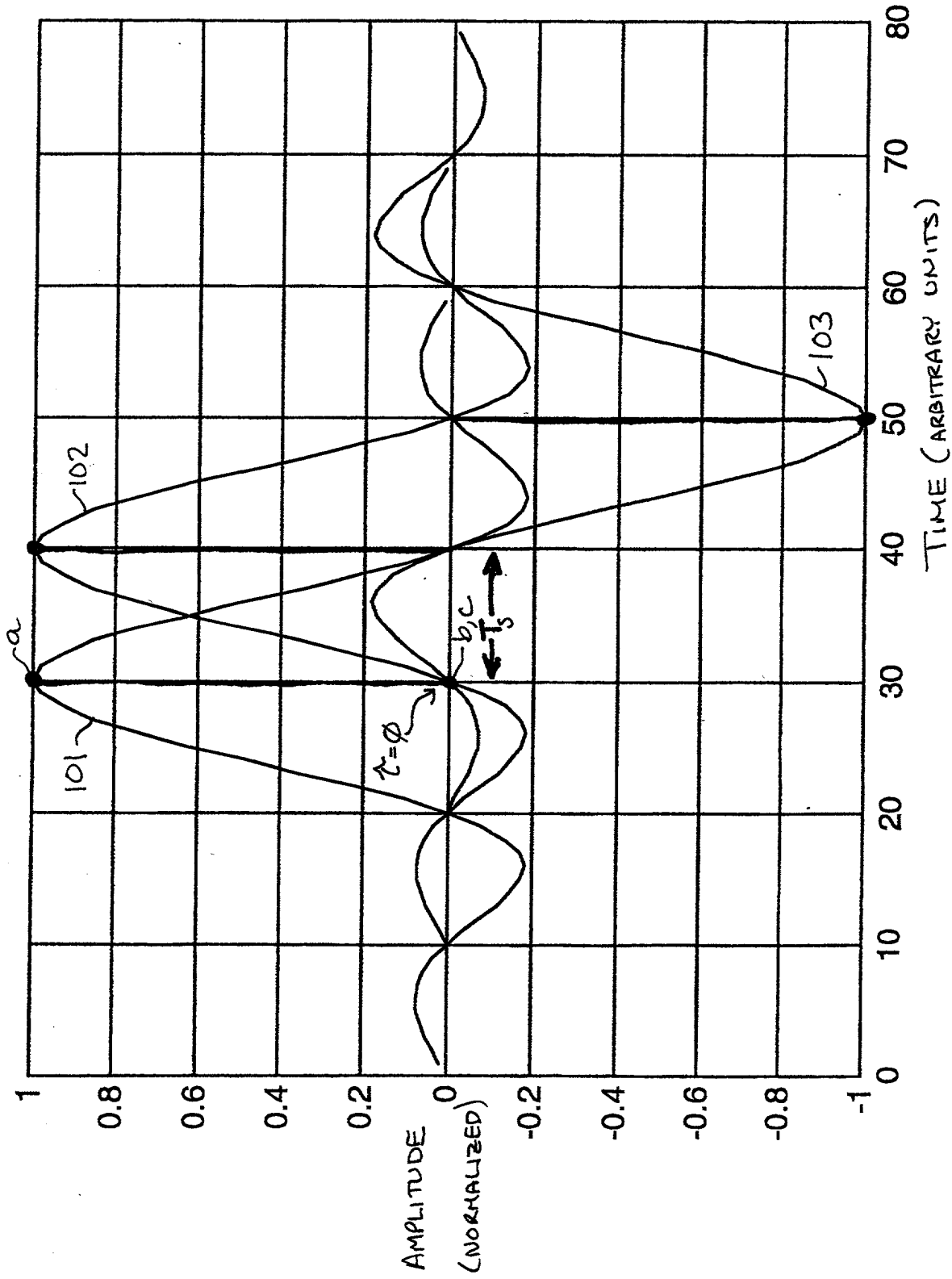


FIG. 1A
(PRIOR ART)

Figure 1B shows the effect of the sampling rate on the amplitude of the signal. The signal is a periodic waveform with a period of 100 units. The amplitude is normalized to 1.0. The sampling rate is 100 units per second. The signal is sampled at 100 units per second. The amplitude of the signal is 1.0. The amplitude of the signal is 1.0. The amplitude of the signal is 1.0.

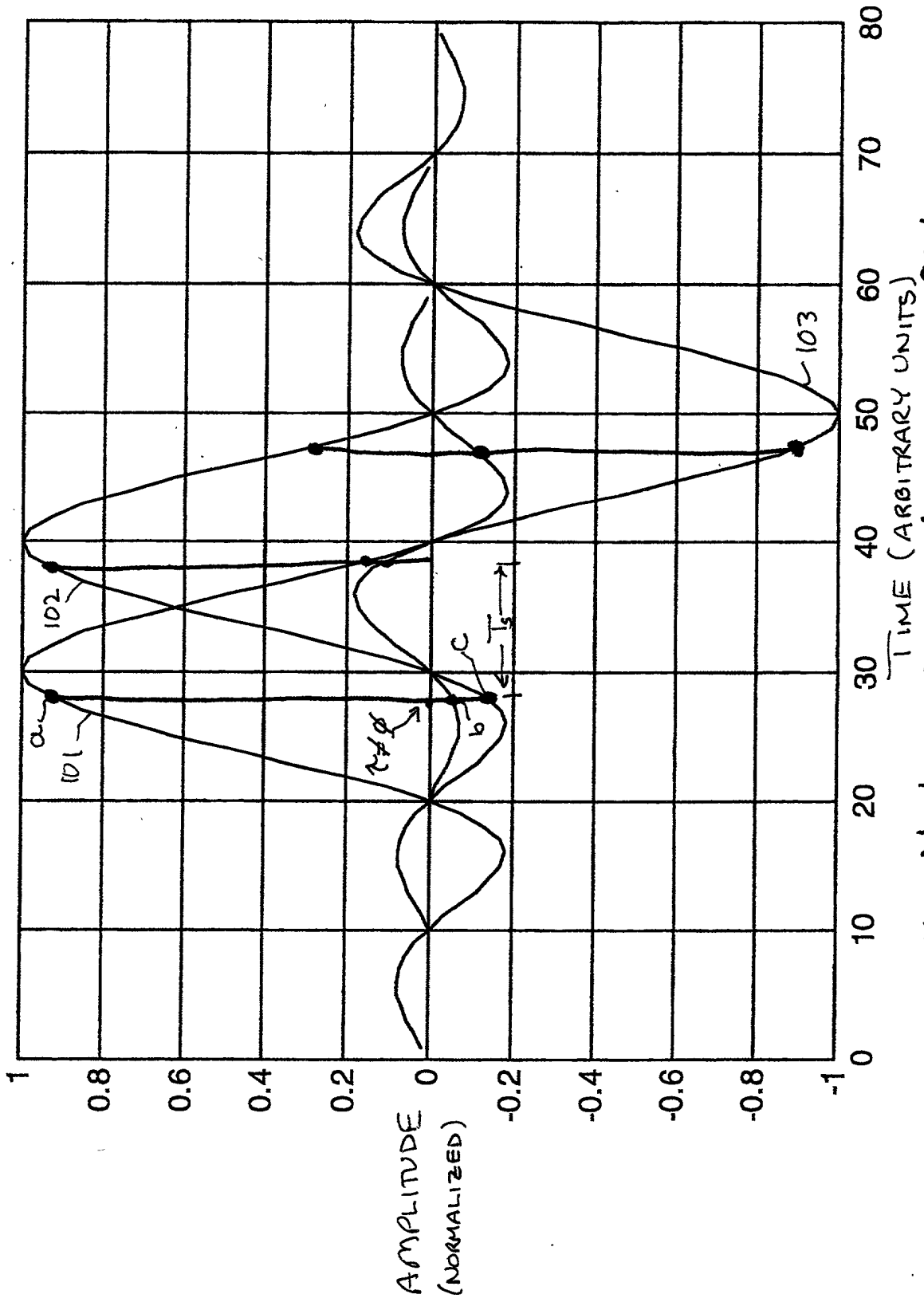


FIG. 1B
(Prior Art)

Non ideal Sampling yielding ISI. $\tau \neq 0$

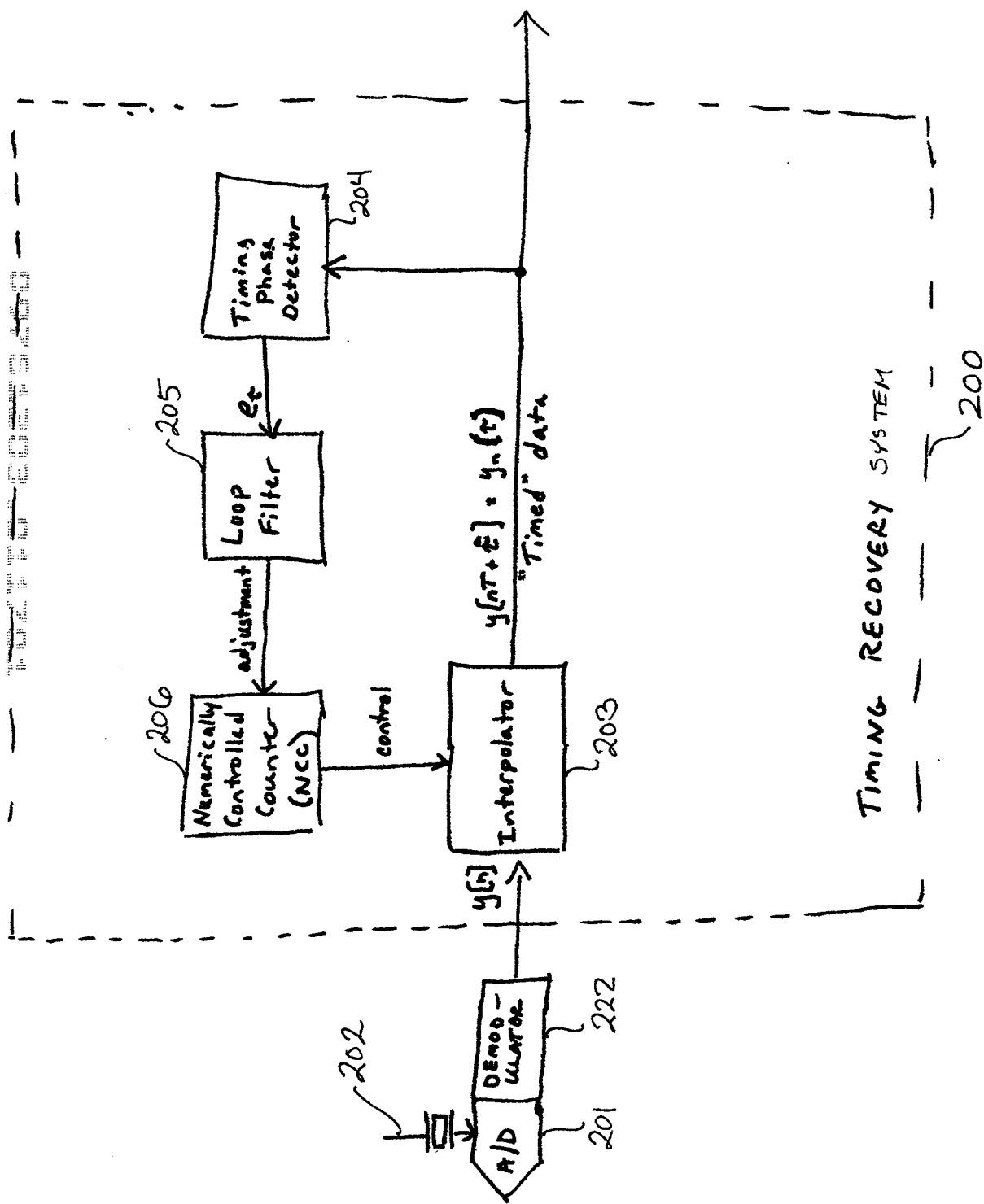


FIG. 2 (PRIOR ART)

When the system is in a steady state, the output of the system is a constant value. This is because the system is a closed-loop system and the output is fed back to the input.

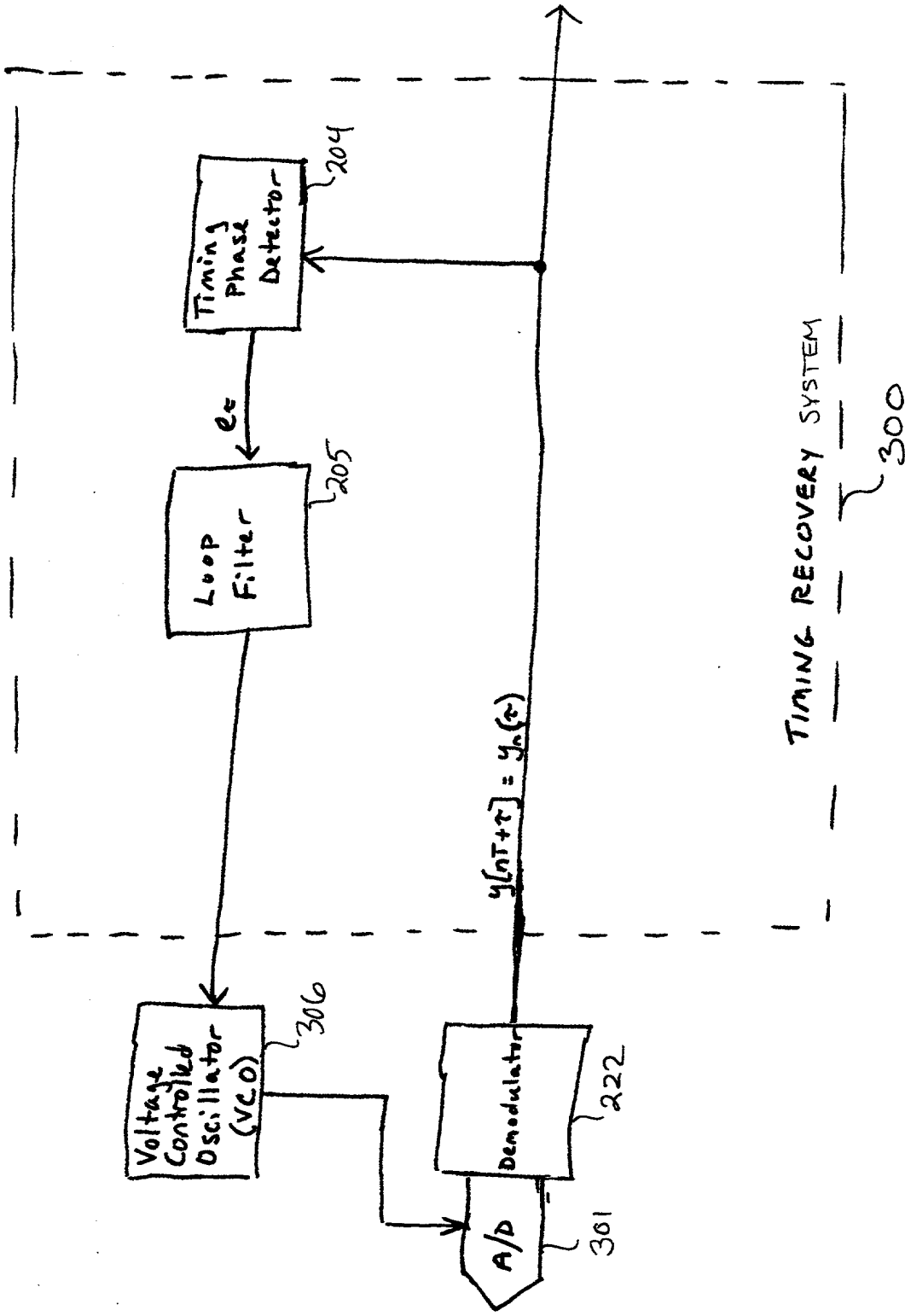
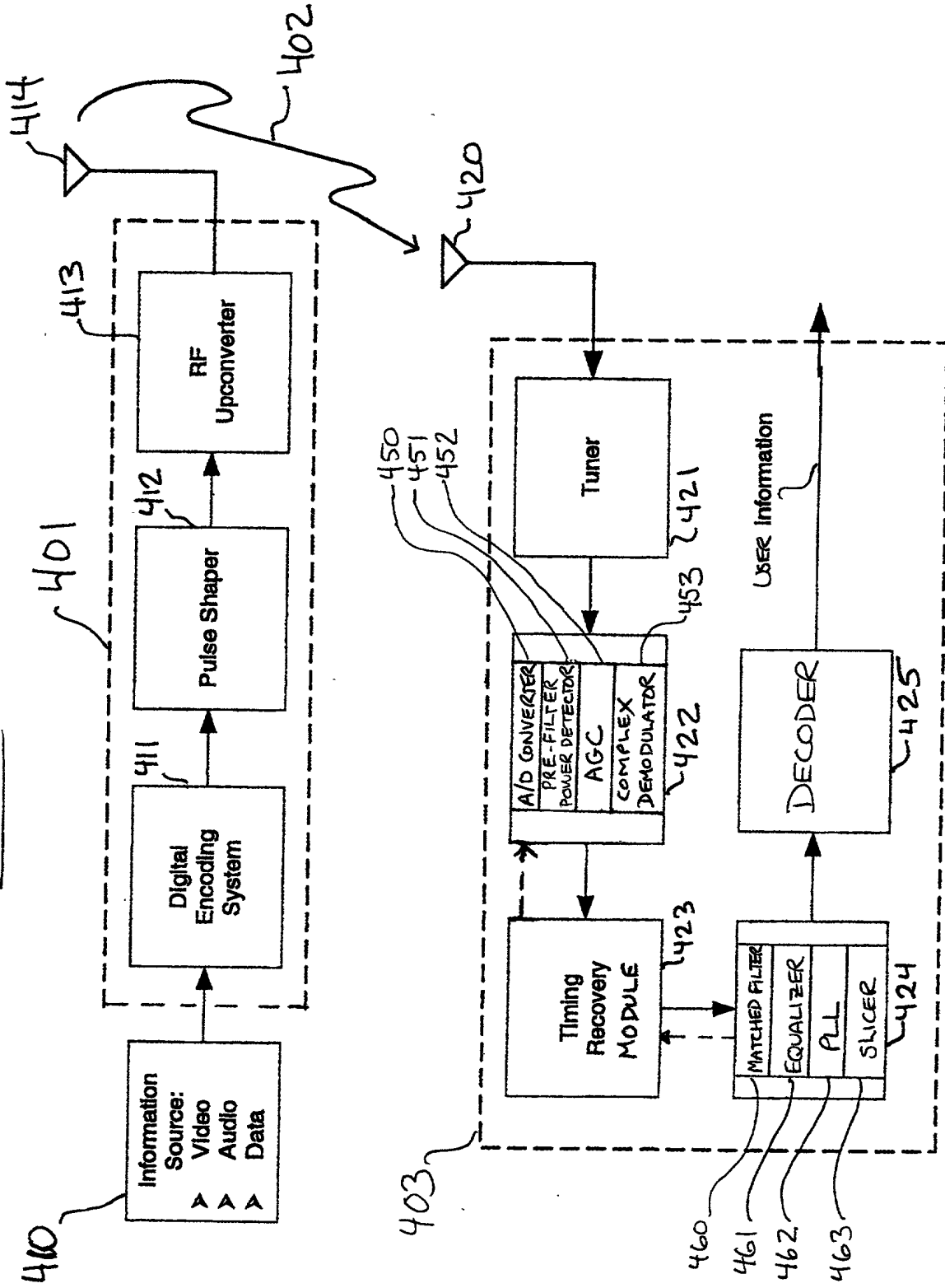


FIG. 3
(PRIOR ART)

FIG. 4

400



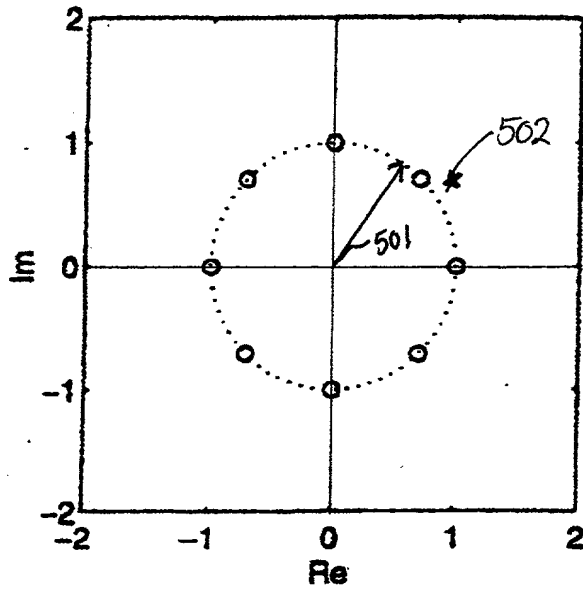


FIG. 5A

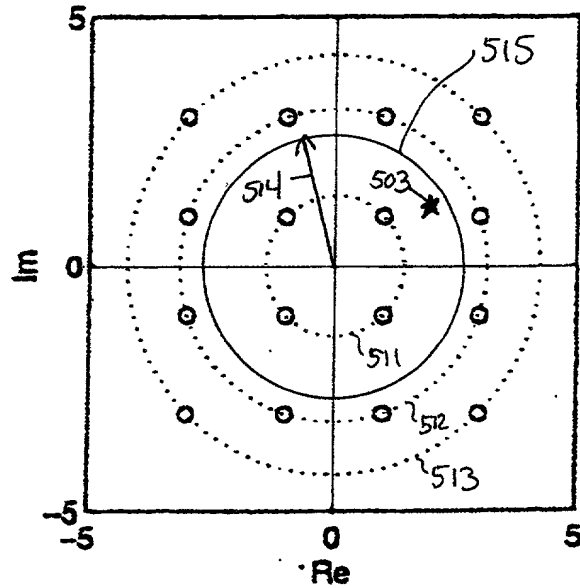


FIG. 5B

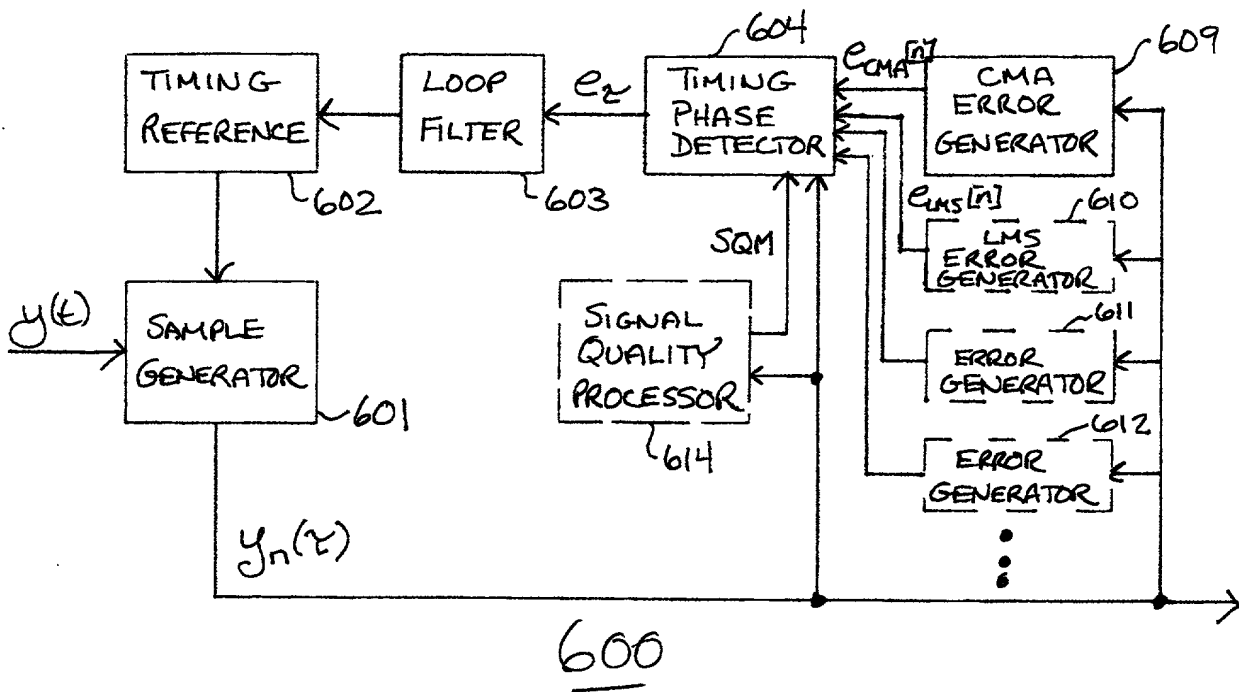


FIG. 6

When any of the above steps are performed, the error signal is calculated as the difference between the two signals.

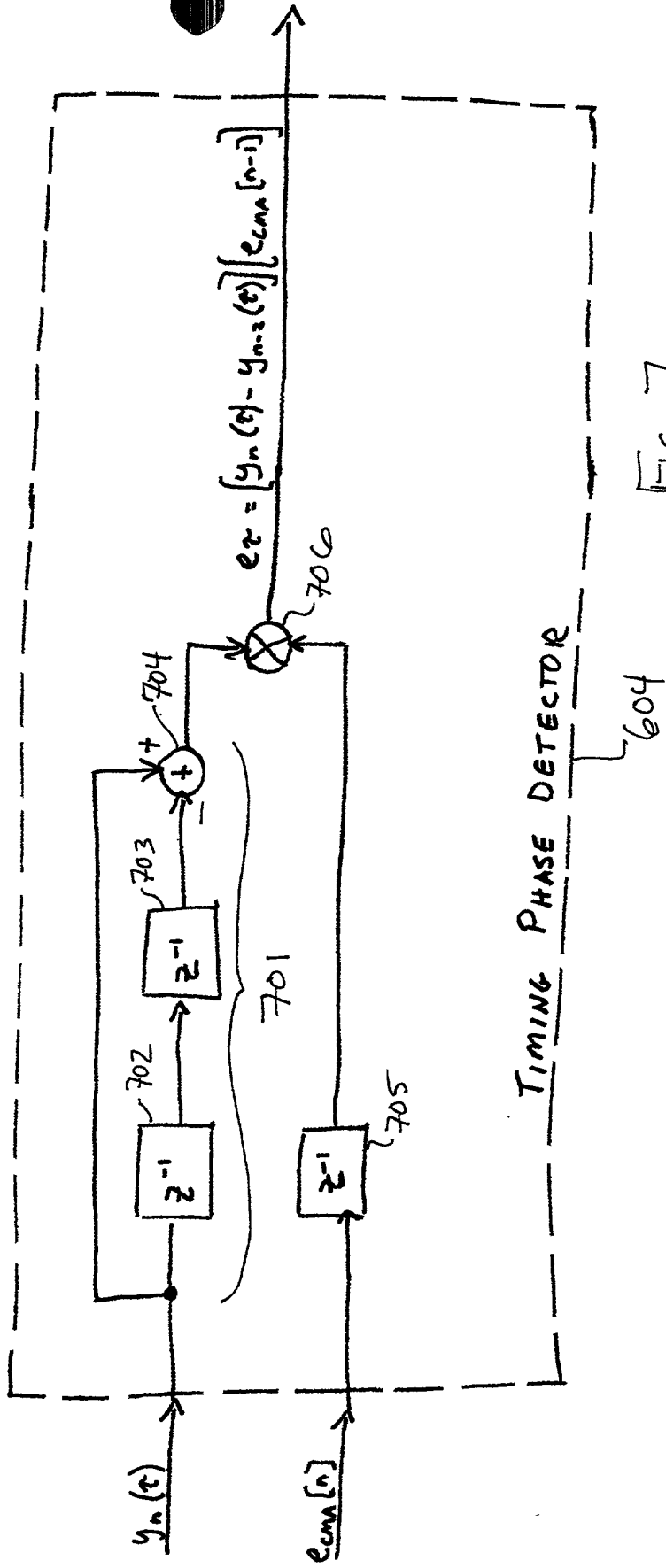


FIG. 7

input and output signals are shown in the block diagram. The input signal is $y_n(t)$ and the output signal is e_{err} .

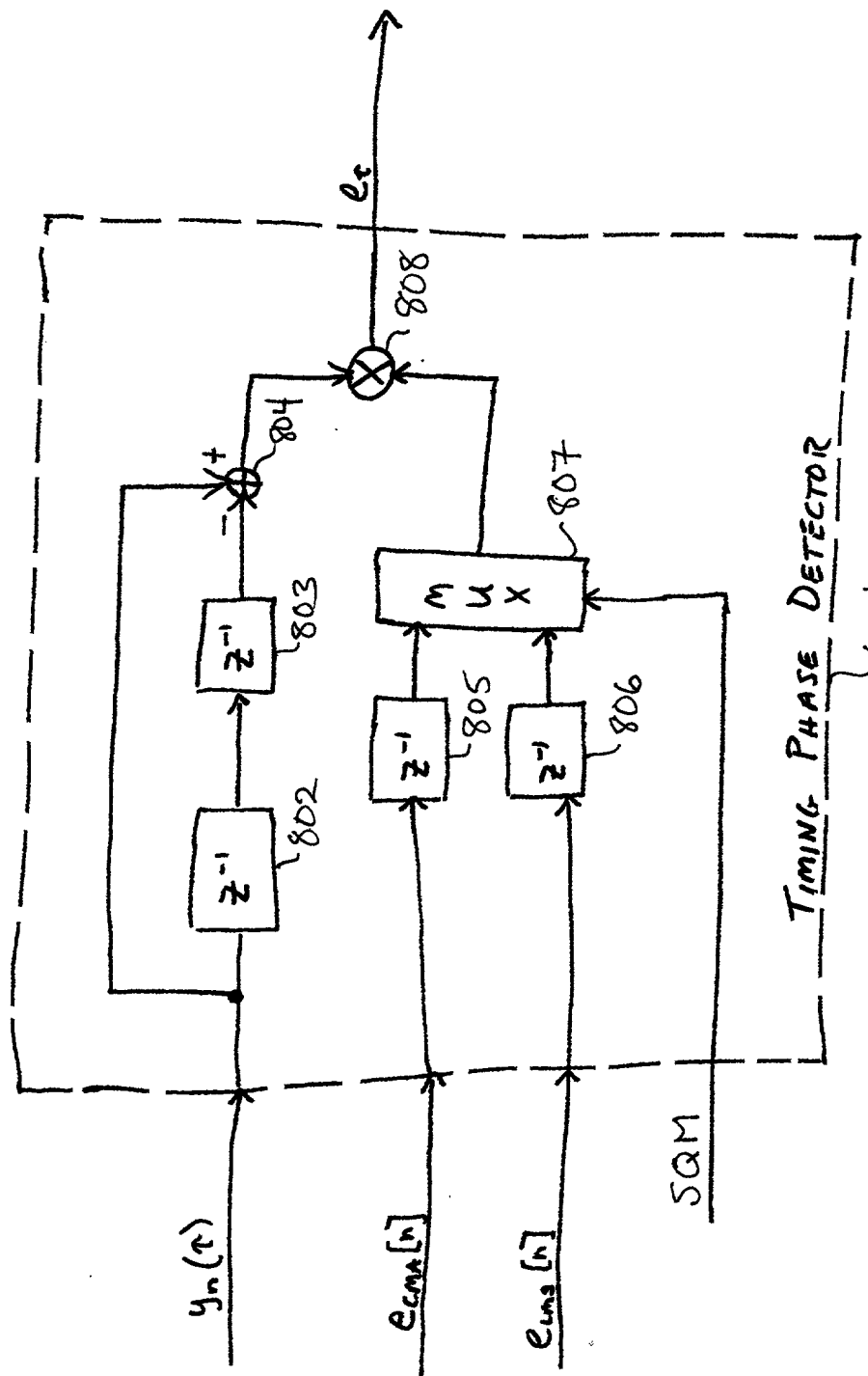


FIG. 8

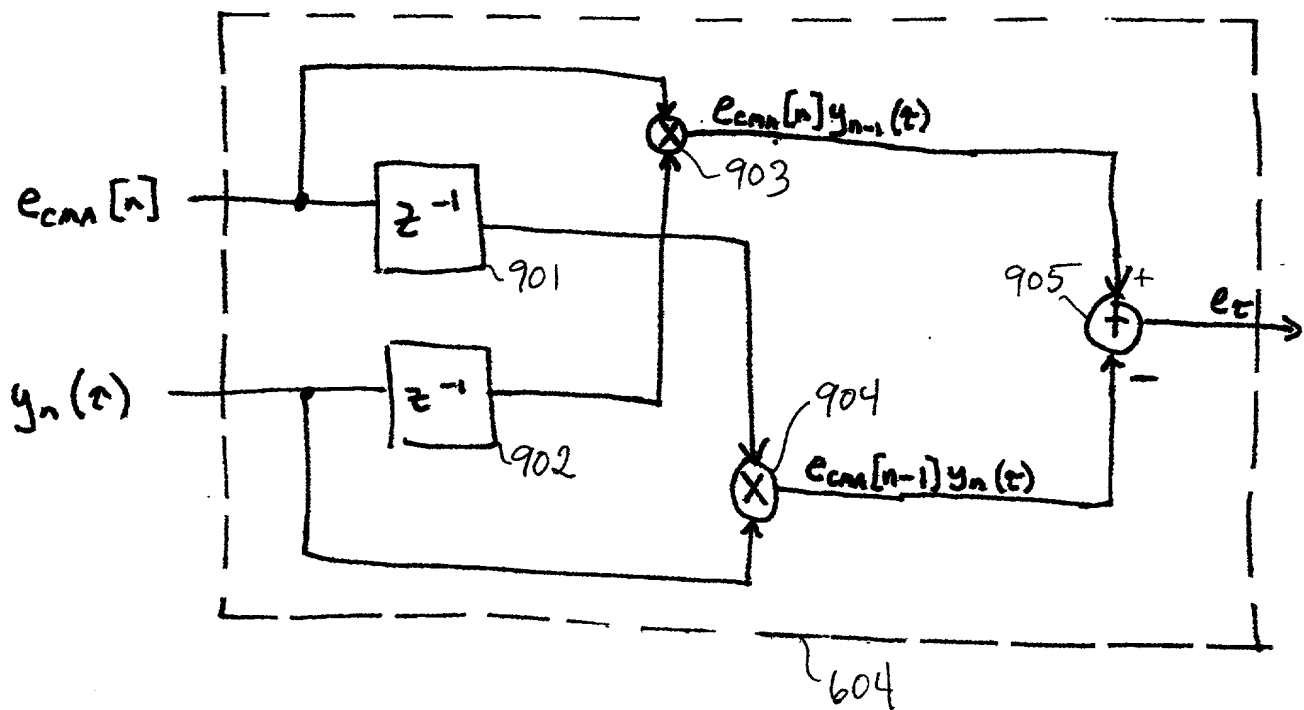
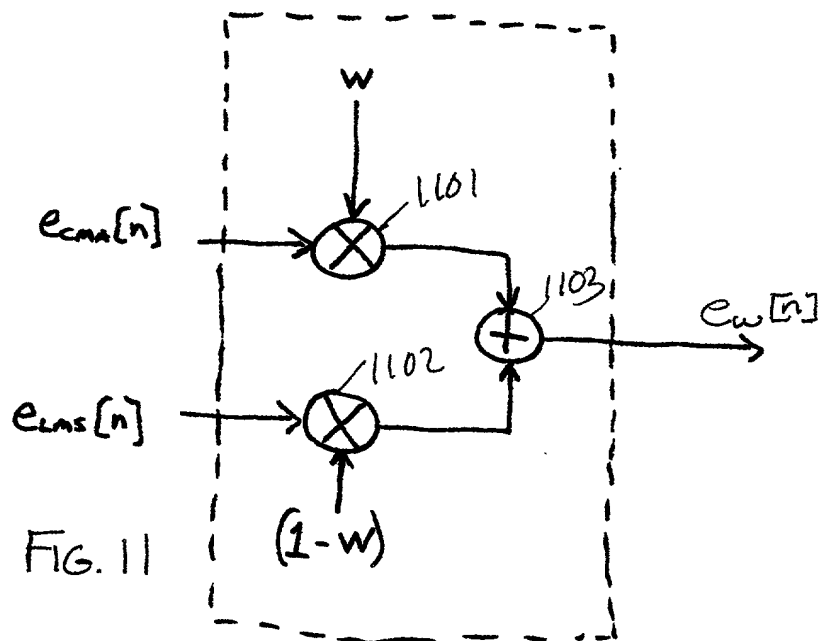


FIG. 9



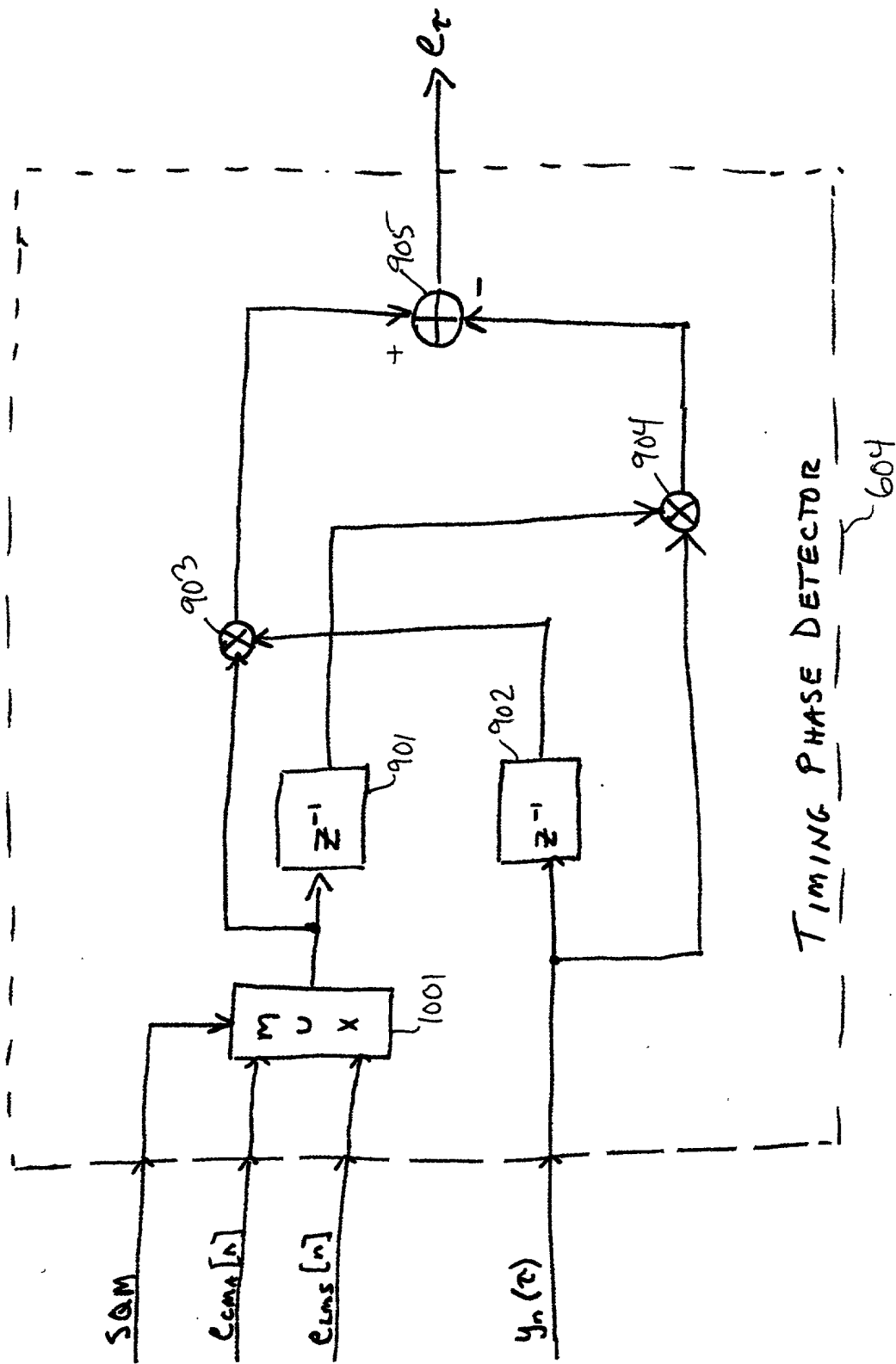
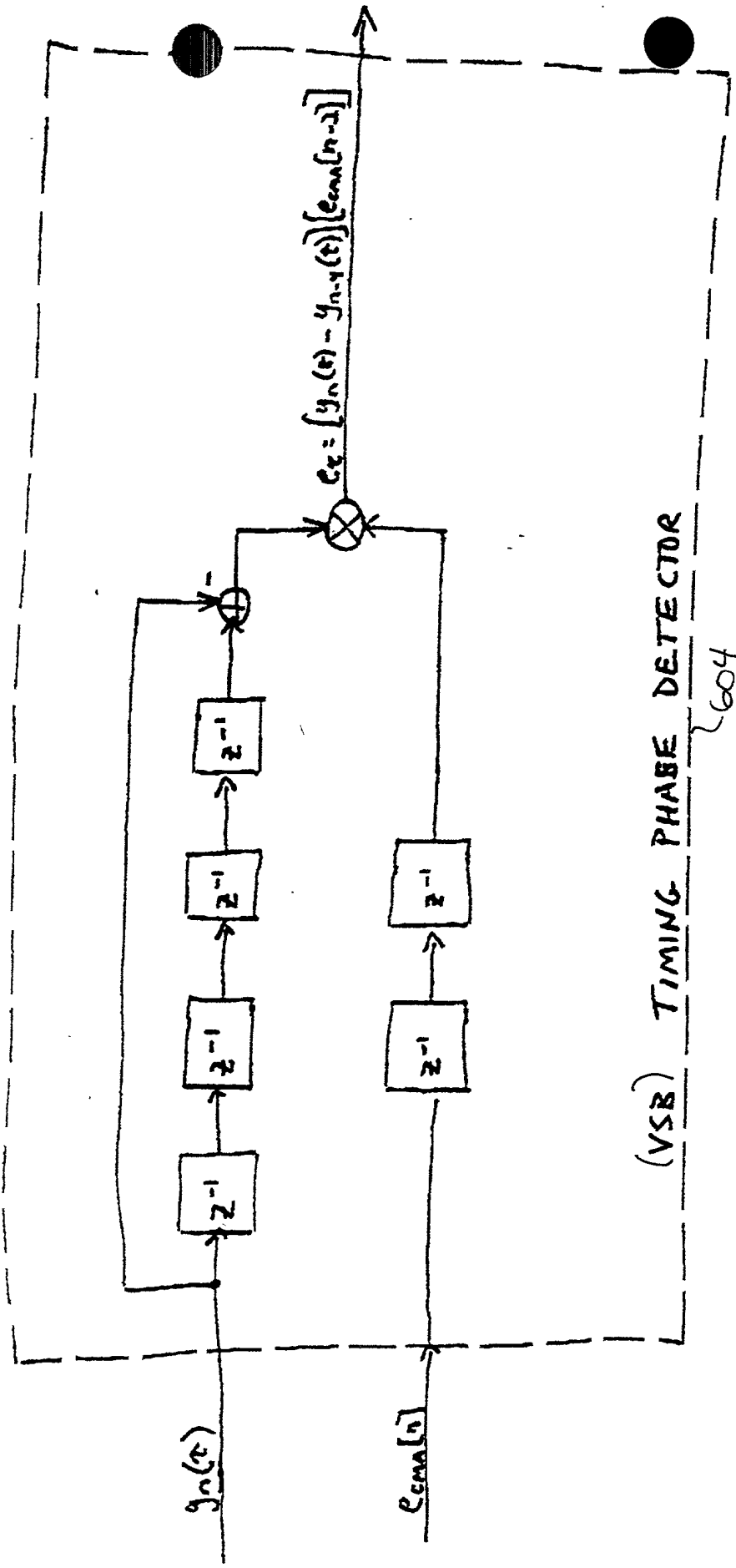


FIGURE 10



(VSB) TIMING PHASE DETECTOR 604

FIGURE 12

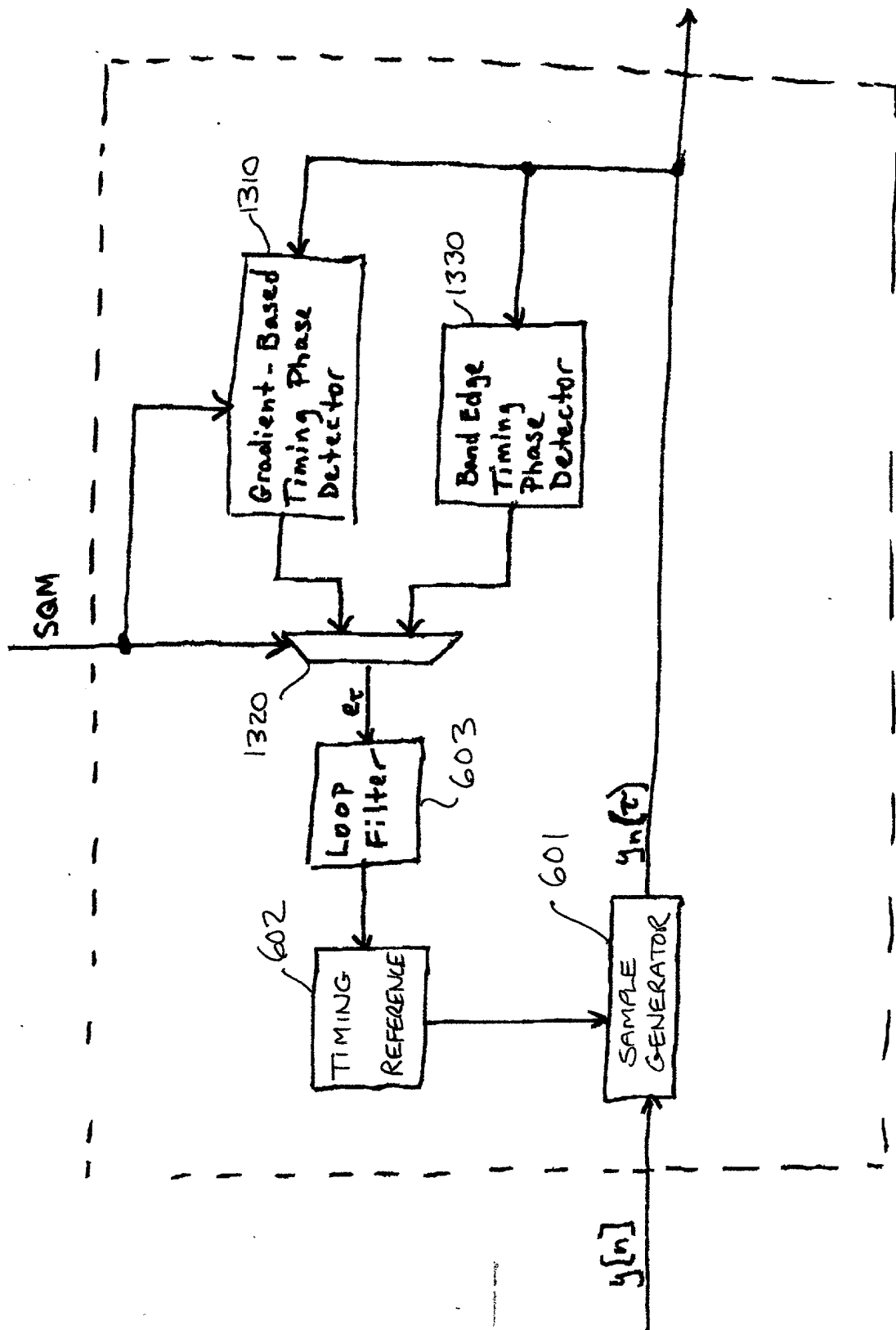


FIG. 13